

## PATENT SPECIFICATION



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563,508

Complete Specification Left: Feb. 10, 1944.

Complete Specification Accepted: Aug. 17, 1944.

## PROVISIONAL SPECIFICATION

## Improvements in Wheels for Tractors and other Vehicles

We, JOSEPH SANKEY & SONS, LIMITED, of Albert Street Works, Bilston, in the County of Stafford, and Hadley Castle Works, Wellington, Shropshire, a Company, incorporated under the laws of Great Britain, and JOHN ROGERS, of Hadley Castle Works, aforesaid, a subject of the King of Great Britain, do hereby declare the nature of this invention to be as follows:—

The invention relates more especially to the wheels of tractors in connection with which it is required to alter the width of the track, this being desirable to ensure that the wheels of the tractor will pass between rows of crops so as not to injure them; but the invention is applicable also to the wheels of other vehicles where the width of the track is required to be varied.

To obtain the above condition a tractor or like wheel has been provided with its tread off-set from the plane where it is attached to the axle or hub, so that alteration of track width can be effected by removing the wheel and replacing it the opposite way round, that is to say making the outer face the inner face.

It has also been proposed to divide the wheel zonally into radially inner and outer parts each of which is off-set, and each by a different amount, so that, when combined with alterations to the wheel on the other side of the vehicle, many different widths of track can be obtained. Further variation can be made by placing the radially outer part outside or inside the inner part.

There is, however, the very considerable disadvantage that the wheel, or the greater part of it, must be removed to alter the width of track; and, owing to the considerable weight of the wheel, this is a very inconvenient process needing two, if not more, persons to perform it.

The present invention has for its object to overcome this inconvenience.

According to this invention the wheel is so constructed that its position in relation to the mid plane of the vehicle can be changed without removal of the wheel or any part of it.

In carrying out the invention, the

attachment of the wheel to the hub, or the attachment of a radially outward part 55 of the wheel to a radially inward part, is effected by means of radially directed bolts or set screws passing through, or screwing into, holes in the one part and passing through laterally directed slots in the other part; so that, when such bolts or set screws are slacked off and the wheel 60 jacked up, the outer part of the wheel can be moved nearer to or farther from the mid plane of the vehicle; and it can then be clamped in the desired position by tightening up the bolts or set screws. 65

According to a simple form of the invention, the wheel may comprise a plain disc carrying the wheel rim at its periphery and having a central aperture with a deep laterally extending flange adapted to fit over a corresponding flange of the wheel hub. One or each of these flanges has formed in it laterally extending slots 70 through which the bolts or set screws are passed. 75

In another simple form of the invention only the disc may have the slotted flange; and set screws, passing through the slots, may screw into tapped holes in the periphetal portion of the wheel hub over which the said flange is a sliding fit. 80

According to a preferred form of the invention, a removable wheel is formed in two parts, an outer or rim part and an inner or disc part the latter being adapted for bolting to a flange of the axle or hub. The inner part has, at its periphery, a laterally extending flange in which either bolt holes or lateral slots are formed. The rim portion has inwardly extending brackets of L- or U-shape each having a portion adapted to lie against the outer surface of the flange of the disc portion, 85 and preferably in a slight recess pressed therein; and each such portion has a hole or slot for the passage therethrough of a bolt which is adapted to pass also through the respective slot or hole in the flange. 90 100

The inner member may be formed as a set of spokes having L-brackets at the outer ends of the spokes, or L-brackets may be secured at intervals round the periphery of the inner member. 105

The wheel rim may be arranged to sup-

port a pneumatic tyre if desired.

In lieu of the inwardly extending brackets on the rim portion, there may be substituted an annular disc with a lateral flange at its inner edge.

Dated this 16th day of February, 1943.

STEPHEN WATKINS, SON & GROVES,

Chartered Patent Agents,  
56, Queen Street, Wolverhampton,  
Agents for the Applicants.

## COMPLETE SPECIFICATION

### Improvements in Wheels for Tractors and other Vehicles

We, JOSEPH SANKEY & SONS, LIMITED, of Albert Street Works, Bilston, in the County of Stafford, and Hadley Castle Works, Wellington, Shropshire, a Company incorporated under the laws of Great Britain, and JOHN ROGERS, of Hadley Castle Works, aforesaid, a subject of the King of Great Britain, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention relates more especially to the wheels of tractors in connection with which it is required to alter the width of the track, this being desirable to ensure that the wheels of the tractor will pass between rows of crops so as not to injure them; but the invention is applicable also to the wheels of other vehicles where the width of the track is required to be varied.

To obtain the above condition a tractor or like wheel has been provided with its tread off-set from the plane where it is attached to the axle or hub, so that alteration of track width can be effected by removing the wheel and replacing it the opposite way round, that is to say making the outer face the inner face.

It has also been proposed to divide the wheel zonally into radially inner and outer parts each of which is off-set, and each by a different amount, so that, when combined with alterations to the wheel on the other side of the vehicle, many different widths of track can be obtained. Further variation can be made by placing the radially outer part outwardly or inwardly of the inner part.

There is, however, the very considerable disadvantage that the wheel, or the greater part of it, must be removed to alter the width of track; and, owing to the considerable weight of the wheel, this is a very inconvenient process needing two, if not more, persons to perform it.

The present invention has for its object to overcome this inconvenience.

According to this invention the wheel is so constructed that its position in relation to the mid plane of the vehicle can

be changed without removal of the wheel or any part of it.

In carrying out the invention, the attachment of the wheel to the hub, or the attachment of a radially outward part of the wheel to a radially inward part, is effected by means of radially directed bolts passing through holes or slots in the one part and passing through laterally directed slots in the other part; so that, when such bolts are slackened off and the wheel jacked up, the outer part of the wheel can be moved nearer to or farther from the mid plane of the vehicle; and it can then be clamped in the desired position by tightening up the bolts. In lieu of using bolts, set screws may be employed screwing into tapped holes in the one part.

According to a simple form of the invention, the wheel may comprise a plain disc carrying the wheel rim at its periphery and having a central aperture with a deep laterally extending flange adapted to fit over a corresponding flange of the wheel hub. One or each of these flanges has formed in it laterally extending slots through which the bolts or set screws are passed.

In another simple form of the invention only the disc may have the slotted flange; and set screws, passing through the slots, may screw into tapped holes in the peripheral portion of the wheel hub over which the said flange is a sliding fit.

According to a preferred form of the invention, a removable wheel is formed in two parts, an outer or rim part and an inner or disc part the latter being adapted for bolting to a flange of the axle or hub. The inner part has, at its periphery, a laterally extending flange in which either bolt holes or lateral slots are formed. The rim portion has inwardly extending brackets of L- or U-shape as seen in side elevation each having a portion adapted to lie against the outer surface of the flange of the disc portion, and preferably in a slight recess pressed therein; and each such portion has a hole or slot for the passage therethrough of a bolt which is adapted to pass also through the respective slot or hole in the flange.

The inner member may be formed as a set of L-shaped spokes or L-brackets may be secured at intervals round the periphery of the inner member.

- 5 The wheel rim may be arranged to support a pneumatic tyre if desired.

In lieu of the inwardly extending brackets on the rim portion, there may be substituted an annular disc with a lateral flange at its inner edge.

Convenient embodiments of the invention are described with reference to the accompanying drawings, in which:—

- 10 Figure 1 is a fragmentary side elevation partly in section of a wheel constructed in accordance with one form of the invention.

Figure 2 is a transverse section taken on the line 2, 2, of figure 1.

- 20 Figure 3 is a view corresponding to figure 2, but showing the rim portion of the wheel set in different relationship to the disc portion.

Figure 4 is a view somewhat similar to figure 2, but showing a flat disc having L-shaped brackets replacing the flanged disc; and,

- 25 Figures 5 and 6 are fragmentary sectional views showing further modifications.

Referring first to figures 1 to 3, A is the wheel disc of dished form and having a return flange *a* at its periphery. This latter has equally spaced depressions *a*<sup>1</sup> pressed in from its outer face. B is the wheel tread or rim having inwardly directed flanges *b* at its two edges.

- Welded to the inner periphery of the rim are channel shaped brackets C spaced at intervals therearound corresponding with the depressions *a*<sup>1</sup>. The base *c* of each bracket has formed in it a long transverse slot *c*<sup>1</sup> extending transversely of the wheel and through each slot is passed a bolt D which passes also through one of a set of clearance holes *a*<sup>2</sup> formed in the depressions *a*<sup>1</sup>. The bolts D screw into special nuts *d* shaped to fit between the side walls of the brackets C to prevent the nuts turning as the bolts are screwed up.

- When the bolts D are slacked, the rim B with the brackets C can be slid bodily from the position shown in figure 1 until the bolts come to any desired position along the slots altering the position of the rim in relation to the disc A; and, by tightening up the bolts, the rim can be clamped in such position. Figure 3 shows the rim clamped in an intermediate position.

In lieu of the slots *c*<sup>1</sup> there may be a series of bolt holes *c*<sup>2</sup> as indicated by broken lines in figure 2; but these, of course, limit the setting to fixed positions.

In lieu of a continuous disc A there may be substituted a nave *a*<sup>3</sup> with spokes *a*<sup>4</sup> as indicated by chain lines in figure 1. Flanges are in such case formed at the outer ends of the spokes having depressions and holes similar to the depressions and holes in the flange *a*.

Referring to figure 4 the construction is very similar to that shown in the previous figures but the disc A is, in this case, formed flat and has angle brackets *a*<sup>5</sup> welded to its one face such brackets having depressions and holes similar to those of the flange *a* in figures 1 to 3.

In the construction shown in figure 5, transverse slots *a*<sup>6</sup> are formed in the flange *a* of a disc A, and through these slots pass bolts D which pass also through clearance holes in the inner members *e* of U-shaped brackets E, the outer members *e*<sup>1</sup> of which are secured to the inner face of the rim B. In lieu of separate brackets E there may be substituted a double flanged ring.

In the construction shown in figure 6, the hub F of the wheel has an annular flange *f* in which are formed transverse slots *f*<sup>1</sup> through which pass bolts which pass also through transverse slots *g*<sup>1</sup> formed in an inner flange *g* of a disc G which has an outer flange *g*<sup>2</sup> secured to the inner surface of the rim B. In this case the bolts D must be removed if it is desired to remove the wheel; but it can be adjusted laterally simply by slacking the bolts.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A vehicle wheel in which a radially outward part of the wheel is laterally adjustable in relation to a radially inward part, characterised in that radially directed bolts or set screws are passed through, or are screwed into, holes in the one part and pass through laterally directed slots in the other part.

2. A vehicle wheel as in claim 1, characterised in that the wheel is attached to the hub by means of radially directed bolts or set screws passing through or screwing into holes in the one part and passing through laterally directed slots in the other part.

3. A vehicle wheel as in claim 1, characterised in that the attachment of the wheel to the hub or the attachment of a radially outward part of the wheel to a radially inner part thereof is effected by means of radially directed bolts passing through laterally directed slots in the two respective parts.

4. A vehicle wheel as in claim 1, characterised in that the attachment of the

wheel rim in relation to a disc of the wheel is effected by radially directed bolts or set screws which pass through holes in a flange of the disc and through transverse slots formed in brackets secured to the inner surface of the wheel rim.

5. A vehicle wheel provided with adjusting means substantially as described with reference to figures 1 to 3 of the accompanying drawings.

6. A vehicle wheel provided with adjusting means substantially as described with reference to figure 4 of the accompanying drawings.

7. A vehicle wheel provided with adjusting means substantially as described with reference to figure 5 of the accompanying drawings.

8. A vehicle wheel provided with adjusting means substantially as described with reference to figure 6 of the accompanying drawings.

Dated this 8th day of February, 1944.

STEPHEN WATKINS, SON &  
GROVES,

Chartered Patent Agents,  
56, Queen Street, Wolverhampton,  
Agents for the Applicants.

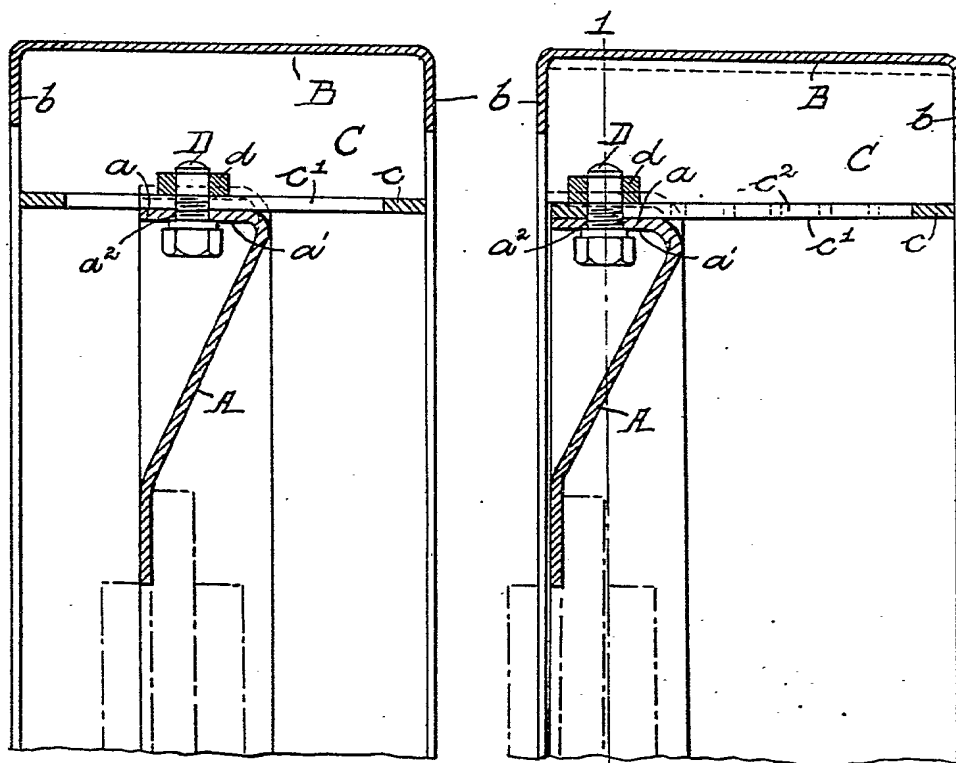


Fig. 3.

Fig. 2.

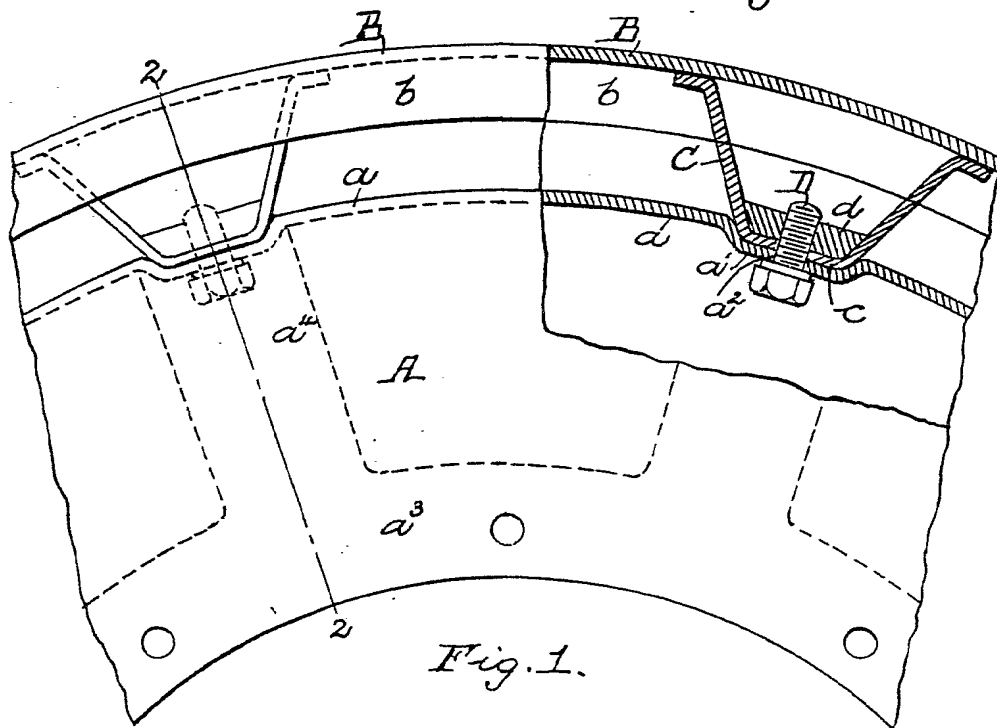


Fig. 1.

[This Drawing is a reproduction of the Original on a reduced scale.]

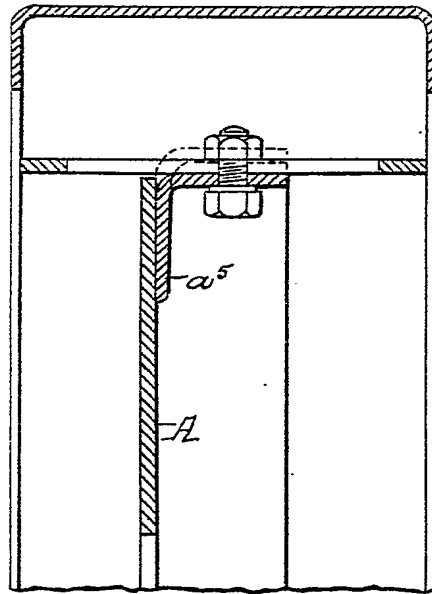


Fig. 4.

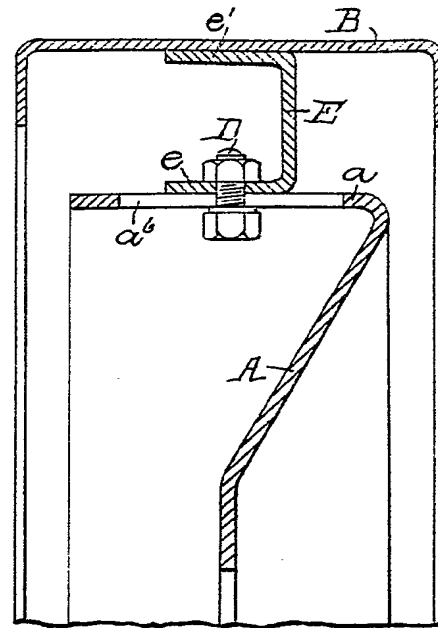


Fig. 5.

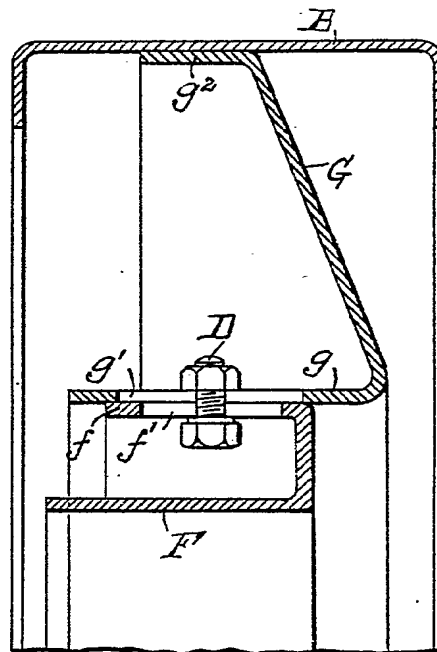


Fig. 6.

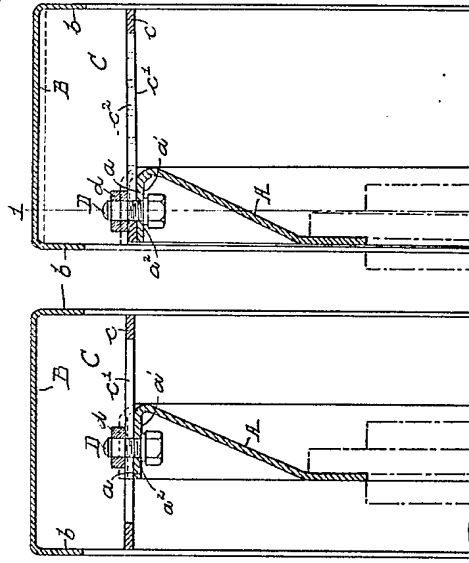


Fig. 3.

Fig. 2.

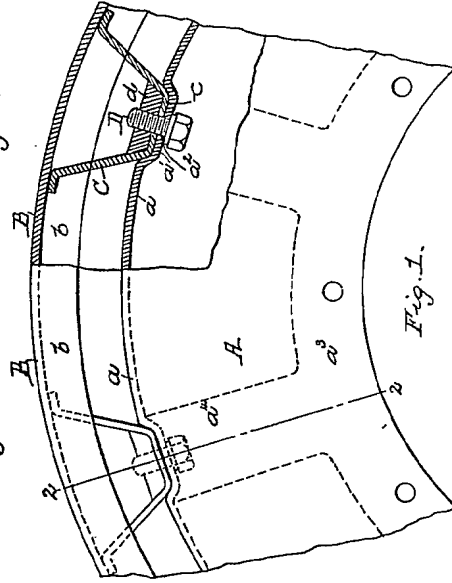


Fig. 1.

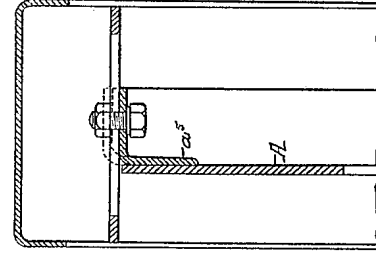


Fig. 4.

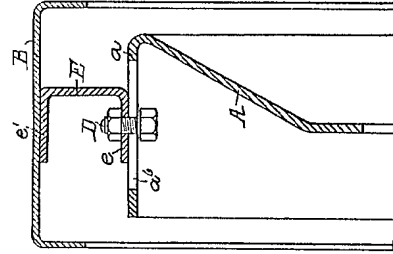


Fig. 5.

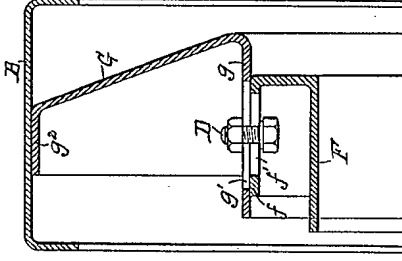


Fig. 6.

[This Drawing is a reproduction of the Original on a reduced scale.]